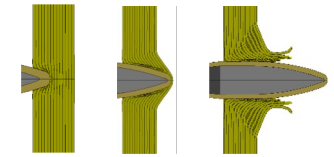


# Structural integrity under extreme load

Topic: In-depth investigations on composite materials



•**TITLE:** Investigation into the uncertainty effect for composite materials

•**RESEARCH BACKGROUND:**

•The complex geometrical characteristic of unidirectional composites leads to a large number of uncertainty sources in turn leading to variability in the mechanical and thermal properties, which has been noticed in both material and structural levels. Thus, uncovering the uncertain issues for composites can be helpful for their development and applications.

•**RESEARCH ACTIVITIES:**

1. Study different sources of material uncertainty in micro and macro scale
2. Develop models in micro/macro scale capable of considering the material uncertainty
3. Build numerical model to replicate the mechanical behaviours of composites under simple and impact loading conditions
4. Establish the relationship between uncertainty and related properties in different scales (optional)

•**METHODOLOGY:** Numerical – Programming – Experimental

•**DURATION:** 7-9 months

•**CONTACTS:**

•[andrea.manes@polimi.it](mailto:andrea.manes@polimi.it)

•[dayou.ma@polimi.it](mailto:dayou.ma@polimi.it)

•[marco.giglio@polimi.it](mailto:marco.giglio@polimi.it)

•**POSSIBLE COLLABORATIONS:**

•Federal University of Rio Grande do Sul (Brazil)

